Performance Measure Profile

Commercial Air Carrier Fatality Rate

FY 2013 Methodology Report

Federal Aviation Administration

Performance Measure Applicability	
☒ **DOT Strategic Plan** Goal: Safety Outcome: Reduction in transportation-related fatalities and injuries. Measure: Reduce commercial aviation air carrier fatalities to no more than 7.4 per million persons on board in FY 2013. ☒ **Agency Priority Goal**	☒ **Destination 2025** Goal: Move to the Next Level of Safety Outcome: No accident-related fatalities occur on commercial service aircraft in the U.S. Metric: Reduce the commercial air carrier fatalities per 100 million persons on board by 24 percent over 9-year period (2010-2018). No more than 6.2 in 2018.

FY 2013 Performance Target

In FY 2013, the commercial air carrier fatality rate will not exceed 7.4 fatalities per 100 million persons on board.

Lead Organization: Aviation Safety (AVS)

	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Target	8.4	8.1	7.9	7.6	7.4
Actual	6.7	0.3	0.0	0.0[1]	TBD

Definition of Metric

Metric Unit:	Number of fatalities per 100 million persons on board.
Computation:	Number of fatalities, including ramp accidents and other fatalities as a result of the accident, divided by number of passengers and crew on board flights.
Formula:	$\frac{\text{Number of commercial air carrier fatalities}}{(\text{Number of persons on board}/100{,}000{,}000)}$
Scope of Metric:	This metric includes both scheduled and nonscheduled flights of U.S. passenger and cargo air carriers (14 CFR Part 121) and scheduled passenger flights of commuter operators (14 CFR Part 135). It excludes on-demand (i.e., air taxi) service and general aviation. Accidents involving passengers, crew, ground personnel, and the uninvolved public are all included.
Method of Setting Target:	The annual targets were calculated to reflect a linear reduction based on the long-term strategic target to reduce fatalities per 100 million persons on board to 4.4% by the year 2025. The baseline, 8.9% was established during the 1997-2006 timeframe.

Why the FAA and/or DOT Choose this Metric

We chose this metric because it is easy to understand and measures the individual risk to the flying public. The metric will help us to move toward a low sustainable rate by maintaining our focus on recently identified

[1] Preliminary estimate, data will be available in March 2014

risks.

Public Benefit

As fatal air carrier accidents have declined in terms of average fatalities per accident, this metric will sharpen FAA's focus on helping air travel become even safer.

Partners

Partners include Bureau of Transportation Statistics (BTS), National Transportation Safety Board (NTSB), FAA's Office of Policy, and International Affairs and Environment (APL).

External Factors Affecting Performance

Approximately 80% of fatal accidents are directly related to some form or combination of human factors. These run the gamut of external organizational influences, inadequate supervision, personnel factors (such as self-imposed stress), to individual acts, such as skill-based errors, misperception errors, judgment and decision-making errors, etc. While an accident's causation can be thoroughly investigated and understood by FAA, as a practical matter, the agency's ability to influence basic decisions by every pilot, every day, and in every circumstance to prevent the accidents becomes much more difficult.

Source of the Data

The data on commercial fatalities come from NTSB's Aviation Accident Database. All but a small share of the data for persons on board comes from the air carriers, who submit information for all passengers on board to the Office of Airline Information (OAI) within BTS. In addition, FAA estimates crew on board based on the distribution of aircraft departures by make and model, plus an average of 3.5 persons on board per Part 121 cargo flight.

Statistical Issues

Both accidents and passengers on board are censuses, having no sampling error. Crew on board is an estimate with a small range of variation for any given make and model of aircraft. Departure data and enplanements for Part 121 are from the BTS. The crew estimate is based on fleet makeup and crew requirements per number of seats. For the current fleet, the number of crew is equal to about seven percent of all Part 121 enplanements. The average number of cargo crew on board is 3.5 per departure, based on data from subscription services such as Air Claims, a proprietary database used by insurers to obtain information such as fleet mix, accidents and claims. Cargo crews typically include two flight crew members, and occasionally another pilot or company rep, or two deadheading passengers. Part 135 data also comes from BTS and Air Claims databases, but is not as complete. AEP calls the operators where BTS data have gaps. Based on previous accident and incident reports, the average Part 135 enplanement is five per departure. Crew estimates for Part 135 are based on previous accident and incident data. Any error that might be introduced by estimating crew will be very small and will be overwhelmed by the passenger census. Also, note that the fatality rate is small and could significantly fluctuate from year to year due to a single accident.

Completeness

The FAA does comparison checking of the departure data collected by BTS. This data is needed for crew estimates. However, FAA has no independent data sources against which to validate the numbers submitted to BTS. FAA compares its list of carriers to the Department of Transportation list to validate completeness and places the carriers in the appropriate category (i.e., Part 121 or Part 135). The number of actual persons on board for any given period is considered preliminary for up to 18 months after the close of the reporting period. This is due to amended reports subsequently filed by the air carriers. Preliminary estimates are based on projections of the growth in departures developed by APL. However, changes to the number of persons on board should rarely affect the annual fatality rate. NTSB and FAA's Office of Accident Investigation and Prevention meet regularly to validate the accident and fatality count.

To overcome reporting delays of 60 to 90 days, FAA must rely on historical data, partial internal data sources, and Official Airline Guide (OAG) scheduling information to project at least part of the fiscal year activity data. The FAA uses OAG data until official BTS data are available. The final result for the air carrier fatality rate is not considered reliable until BTS provides preliminary numbers. Due to reporting procedures in place, it is unlikely that calculation of future fiscal year departure data will be markedly improved. This lack of complete historical data on a monthly basis and independent sources of verification increases the risk of error in the activity data.

NTSB and the Office of Accident Investigation and Prevention meet regularly to validate information on the number of fatalities. Accident data are considered preliminary. NTSB usually completes investigations and issues reports on accidents that occur during any fiscal year by the end of the next fiscal year. Results are considered final when all those accidents have been reported in the NTSB press release published by March. FY 2013 results will therefore be final after the 2015 press release. In general, however, fatal and serious injury accident numbers are not likely to change significantly between the end of the fiscal year and the date they are finalized.

Reliability

Results are considered preliminary based on projected activity data. The FAA uses performance data extensively for program management, personnel evaluation, and accountability. Most accident investigations are a joint undertaking. NTSB has the statutory responsibility to determine probable cause, while FAA has separate statutory authority to investigate accidents and incidents in order to ensure that FAA meets its broader responsibilities. The FAA's own accident investigators and other FAA employees participate in all accident investigations led by NTSB investigators.